PATENT CLAIMS

1. An end piece for magnetic coupling of core parts to a closed path for magnetic flux, the end piece comprising:

a magnetic path part comprising a plurality of substantially adjacent, wire-shaped bodies, each wire shaped body comprising end surfaces; and

at least an abutment surface for abutment of the magnetic path part against the core parts,

wherein the abutment surface comprises the end surfaces of the wire-shaped bodies.

2. The end piece according to claim 1, wherein the wire-shaped bodies are made of a magnetizable material.

3. The end piece according to claim 2, wherein the magnetizable material is iron.

4. The end piece according to claim 1, wherein the magnetic path part is hollow.

5. The end piece according to claim 4, wherein the wire bodies form arcs between an inner annular abutment surface and an outer annular abutment surface.

6. The end piece according to claim 4, wherein the wire bodies form arcs between two annular surfaces arranged beside each other.

7. The end piece according to claim 5, wherein the inner annular surface has the same area as the outer annular surface.

8. The end piece according to claim 6, wherein the annular surfaces are cylindrical and have a uniform thickness.

9. A composite core for a magnetic device, the composite core comprising:

at least one core part; and

at least one end piece for magnetic coupling of the at least one core part to a closed path for magnetic flux, the end piece comprising wire shaped magnetic bodies, the wire shaped magnetic bodies comprising end surfaces,

wherein the end piece comprises at least an abutment surface for abutment against the

core part and a magnetic path part,

wherein the magnetic path part comprises a plurality of substantially adjacent, wire-shaped bodies, and

wherein the abutment surface comprises the end surfaces of the wire-shaped bodies.

10. The composite core according to claim 9, wherein the core part comprises sheet magnetic material.

11. The composite core according to claim 9, wherein the core part comprises sintered material.

12. The composite core according to claim 9, further comprising two adjacent cylindrical core parts and two end pieces.

13. The composite core according to claim 9, further comprising two concentric cylindrical core parts.

14. The composite core according to claim 9, further comprising two adjacent parts each having a rectangular cross-section.

15. A method of manufacturing an end piece for magnetic coupling of core parts to a closed magnetic path for magnetic flux, the end piece comprising, a magnetic path part comprising a plurality of substantially adjacent wire-shaped bodies, and at least an abutment surface for abutment of the magnetic path part against the core parts, wherein each wire-shaped body comprises an end surface, and wherein the abutment surface comprises end surfaces of the wire-shaped bodies, the method comprising the steps of:

winding a wire of magnetic material around a mold in order to form the magnetic path part;

dividing the wire winding in two in order to form abutment surfaces;

removing the mold from the wire winding; and

treating the abutment surfaces in order to provide a smooth surface,

wherein abutment surfaces of the end piece have a shape which corresponds to a shape of an abutment surface of the core parts.

16. The method according to claim 15, wherein the core parts comprise a first tube and a second tube, wherein the tubes are concentrically arranged and wherein the mold is a toroid, the method further comprising the steps of:

winding the wire around the toroid in an annular direction relative to a linear axis located at a center of the toroid, and

dividing the wire winding in a plane comprising the largest diameter of the toroid to form a first abutment surface and a second abutment surface,

wherein the first abutment surface forms an outer ring for abutment against the first tube, and

wherein the second abutment surface forms an inner ring for abutment against the second tube.

17. The method according to claim 15, wherein the core parts are two tubes placed in parallel beside each other, wherein the two tubes are at a distance from each other, and wherein the mold is a toroid, further comprising the steps of:

winding the wire around the toroid in an annular direction relative to a linear axis located at a center of the toroid; and

dividing the wire winding in a plane perpendicular to the annular direction to form abutment surfaces,

wherein the abutment surfaces comprise two rings for abutment against the core parts.

18. The method according to claim 17, wherein the mold comprises an inner toroid and an outer toroid, further comprising the steps of:

centering the inner toroid within a tube formed by the outer toroid;

locating an opening along an outer diameter of the outer toroid;

inserting the wire into the tube through the opening; and

winding the wire within the outer toroid,

wherein the mold comprises a gap where the wire winding can be intersected in a plane perpendicular to the annular direction, and

wherein the abutment surfaces comprise two rings for abutment against the core parts.

19. The method according to claim 15, wherein the core parts are a number of tubes located beside one another in a circle, wherein the tubes are located at a distance from one another, and wherein the mold comprises a hollow outer toroid, further comprising the steps of:

dividing the outer toroid along a path comprising a fixed radius from a linear axis located at a center of the toroid;

locating an inner toroid inside the outer toroid;

winding the wire within the outer toroid in an annular direction relative to the linear axis; and

dividing the wire winding in a plane perpendicular to the annular direction;

wherein the path comprises a cylindrical plane perpendicular to a radial direction where the toroid has a largest diameter, and

wherein the abutment surfaces comprise two half rings for abutment against the core parts.

20. The method according to claim 15, wherein the mold has a cross-section with a shape selected from the group consisting of circular, oval, triangular, parallelogrammatic, and polygonal shaped cross-sections.

21. A method of manufacturing a composite core for a magnetic device according to one of claims 15-20, the method comprising the steps of:

manufacturing at least one core part by rolling and cutting sheet material;

manufacturing at least one end piece by the method according to any one of claims 15-20; and

joining the at least one core part to the at least one end piece by taping the core part to the end piece.

22. The method of claim 21, wherein the step of manufacturing at least one core part comprises:

manufacturing the core part by sintering powdered material.

23. The method of claim 21 wherein the core part and the end pieces are taped together with a tape that is selected from a group consisting of seize tape, glass fiber tape, and cotton tape.

24. The method of claim 21, wherein the step of joining the core part to the end piece comprises gluing the core part and the end piece together.